

Magnetek HPV-900 Drive-Overview

The Magnetek HPV-900 drive is preset with the job parameters from the ESI Factory. There are only a few parameters that may need to be changed in the field. Please refer to the Magnetek HPV-900 Manual for directions on navigating the menus.

Menu: Adjust Drive-A1

- CONTRACT CAR SPD (FPM)
- CONTRACT MTR SPD (RPM)

Menu: Adjust Multi-Step Ref-A3

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|-------------------------|-----------------------------------|
| ▪ SPEED COMMAND 1 (FPM) | -Leveling Speed |
| ▪ SPEED COMMAND 2 (FPM) | -Inspection Speed |
| ▪ SPEED COMMAND 3 (FPM) | -Floor Seek Speed |
| ▪ SPEED COMMAND 4 (FPM) | -One Floor Run Speed / High Speed |
| ▪ SPEED COMMAND 6 (FPM) | -HSM Speed |

Menu: Adjust Motor-A5

- RATED MTR POWER (HP)
- RATED MTR VOLTS (V)
- RATED EXCIT FREQ (Hz)
- RATED MOTORS CURRENT (A)
- RATED MOTOR SPEED (RPM)
- MOTOR POLES
- % NO LOAD CURR

The above values are job specific. They have been preset based on Engineering Data Sheets.

Visual feedback can be obtained from the HPV-900 drive.

MENU: Elevator Data-D1

- SPEED COMMAND
- SPEED REFERENCE
- SPEED FEEDBACK
- ENCODER SPEED

Getting Started

Before the controller and the drive were shipped, the entire system was tested and ran at the factory. The drive ran a motor and was conformed to specifications before being shipped. All drive parameters were then preset based on the information provided in the controller order form. Verify that the information given to the control manufacturer on the motor is correct. Verify that the parameters from the Magnetek M1000 Overview are set correctly

The control system uses the internal speed algorithm of the Magnetek HPV-900 drive. Adjustments to the acceleration, deceleration and jerk rates are done through the drive.

Magnetek HPV-900 Drive-Speed Adjustment

Attempt to run the car by using the inspection up/down buttons on the controller. Hold the up button until the car starts to move. If the car runs in the down direction stop the car. Swap 2 Motor Leads (T1 ↔ T2)

Verify that the car runs in the right direction now (both up and down) and verify that the Count Screen is updating correctly as the car runs (number increases as the car runs up and decreases as the car runs down).

Go to MENU: **Adjust Drive-A1**

- **CONTRACT CAR SPD (FPM)** - Verify that this parameter is set to the rated contract speed of the car.
This speed is defined in feet per minute.
- **CONTRACT MTR SPD (RPM)**- Adjust this parameter to the value that will make the car run at the inspection speed. Use a handheld tachometer to verify the actual car speed. This is not data from the nameplate. This parameter sets the speed at which the drive will run the motor when the car is demanded to run at contact speed. If the car is moving slower than the commanded speed, increase the value of **CONTRACT MTR SPD**. If the car is moving faster than the commanded speed, decrease the value of **CONTRACT MTR SPD**. Repeat the procedure until the car is moving at exactly the commanded speed.
**NOTE: For this procedure, we are using Inspection Speed. The commanded speed is the speed found in MENU: Adjust Multi-Step Ref-A3 (SPEED COMMAND 2).

Run the car at contract speed (refer to MENU: **Adjust Multi-Step Ref-A3** (Speed Command 4) and verify with a handheld tachometer that the car is running at the correct speed.

Once this is complete you may move on to adjust the ESI Controller speed feedback.

ESI Controller - Speed Feedback Adjustment

The following steps must be completed before an accurate speed can be displayed by the ESI Controller.

- 1) Set PAR[20] = 3
- 2) Use the ^ to go to the Count Screen (ESI Mon - Page 2) and move the car. Verify that the velocity displayed matches the velocity displayed on the Magnetek HPV-900 drive (**Elevator Data-D1 SPEED FEEDBACK**) and also verify with a handheld tachometer.
- 3) If the velocity is not correct then edit PAR [87]. If the value displayed is greater than the actual speed then lower PAR [87]. If the value displayed is less than the actual speed then increase PAR [87].
- 4) Once the velocity on the ESI Controller, the Magnetek HPV-900 Drive and the handheld tachometer match, reboot the controller.

ESI Learn Floor Trip

Before performing the ESI Learn Floor Trip, there are several new parameters that must be verified.

- PAR[20] → Unlock Parameters — *unlock system parameters*
- PAR[81] → Slowdown Distance #1 — *distance in inches from the terminal floor (one floor run)*
- PAR[82] → Slowdown Distance #2 — *distance in inches from the terminal floor (multi-floor run)*
- PAR[85] → Level Magnet Length — *in inches*
- PAR[86] → Contract Speed (FPM) — *top speed of the car*
- PAR[87] → Contract Motor RPM — *adjust to get correct speed*
- PAR[88] → Learn Floor Heights - *should be at zero expect when performing the test*
- PAR[91] → Encoder PPR — *1=1024 2=2048*

Prep Work

- 1A) Controller with Delta ED, must be autotuned FIRST.
 - 1) Reboot Controller
 - 2) Bring car to the lowest landing
 - 3) Verify that Z relay is ON
 - 4) Leave car in Automatic / for HPV-900 – Set inspection to 25 fpm
For Delta ED set (Par 04-02) to 10Hz. (If >150 fpm, change to 6Hz)

Initialize Test

- 5) Set PAR[20] = 3 *Enable Parameter Setting*
- 6) Set PAR[88] = 1 *Enable Learn Floor Trip*
- 7) From the ESI MON screen, use the ^ to go to the ESI MON-2 Screen

Begin Learn Floor Trip

- 8) Place a car call to the top floor and allow car to run to the top floor – *Note that the car will run at inspection speed and stop at the top floor. PAR [88] will reset automatically upon stop.*
- 9) Go to the Setup/Utilities Menu screen and use the ^ to get to the View Floor Counts Screen. View the value of the floor counts and verify that all floors have a value.

Verify Results

- 10) Run the car down one floor at a time.
- 11) Run the car up one floor at a time.
- 12) Run the car several floors at a time in the down direction.
- 13) Run the car several floors at a time in the up direction.
- 14) Make one floor runs into the Terminal Landings.
- 15) Make multi-floor runs into the Terminal Landings.
- 16) Set inspection speed back to original setting.

Perform Test Only If Speed Is 250 FPM Or Greater!

ESL TESTING INSTRUCTIONS

The ESL Test is to be performed before the car is placed in service.

Before the test begins ensure that the controller is in an intermediate floor (not a terminal landing). There are three (3) controller parameters involved with the ESL system. The parameters are:

- PAR[180] = ESL CHECK ENGAGE (0 = NO Check, 1 = Check)
- PAR[181] = ESL 1 RPM SPEED
- PAR[182] = ESL 2 RPM SPEED

NOTE: In order to enable the controller to allow you to change the values of these parameters, you must change the value of PAR [20] to 3.

Test Procedure

1. Verify that the Low Speed Slowdown Limits (52 and 53) are set at the appropriate distance from the terminal landings.
2. Verify that the High Speed Slowdown Limits (52M and 53M) are set at the appropriate distance from the terminal landings.
3. Set PAR [181] to the High Speed RPM value.
4. Set PAR [182] to the Low Speed RPM value.

NOTE: ESI uses a second set of safety parameters that could interfere with the ESL testing. Please ensure that steps 5 and 6 are taken so that the ESL test can be performed accurately.

5. Set PAR [81] to 12. PAR [81] is the Slowdown Distance 1 Parameter.
6. Set PAR [82] to 12. PAR [82] is the Slowdown Distance 2 Parameter.
7. Set PAR [83] to 12. PAR [83] is the Slowdown Distance 3 Parameter if present.
8. Jump 52M so that it does not break when the car passes the switch.
9. Run the car into the bottom floor.
10. Upon reaching 52, the car will shut down and the ESI LCD display will show the status of the car as ESL Error.
11. Toggle the Controller Inspection Switch to clear the error.
12. Remove the jumper from 52M.
13. Move the car to the center of the hoist way.
14. Jump 53M so that it does not break when the car passes the switch.
15. Run the car into the top floor.
16. Upon reaching 53, the car will shut down and the ESI LCD display will show the status of the car as ESL Error.
17. Toggle the Controller Inspection Switch to clear the error.
18. Remove the jumper from 53M.
19. Reset PAR [81] and PAR [82] to the correct distance values.

NTS TESTING INSTRUCTIONS

The NTS Test is to be performed before the car is placed in service.

- Place Car Level at a floor in the middle of the shaft
- Unplug Encoder to the left of the CPU or
- for controllers using dp/up stepping disconnect terminals #85 and #86
- Disconnect Field Wires to Terminals 81 & 82 (leveling)
- Place a car call for the Lowest Landing. The car will slow down via the Bottom Slow Down Limits and stop on the Bottom Normal Limit.
- Place a car call for the top floor. The car will slow down via the top slow down limits and stop on the Top Normal Limit.
- Restore Encoder Plug. Reconnect terminals #81, #82, and/or #85 /#86